

UNITED STALES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500 DENVER, COLORADO 80202-2466

JUN 1 9 1996

Ref: 8P2-W-GW

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Angela R. Ely Administrative Operations Manager Petroglyph Operating Company, Inc. 6209 North Highway 61 Hutchinson, Kansas 67502

> RE: UIC Permit Minor Modification Conversion of Additional Wells (5) Antelope Creek Waterflood EPA Area Permit UT2736-00000 Duchesne County, Utah

Dear Ms. Ely:

Your letter of April 3, 1996, requesting that the following five (5) wells be converted to Class II enhanced oil recovery wells and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit UT2736-00000, is hereby granted.

NAME	LOCATION	EPA PERMIT NO.
Ute Tribal 04-01 Ute Tribal 05-08 Ute Tribal 29-08 Ute Tribal 05-16 Ute Tribal 04-05		UT2736-04322 UT2736-04324 UT2736-04325 UT2736-04327 UT2736-04328

These additional wells are within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in the Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of these additional injection wells. The proposed well location, well schematic, conversion procedures, and revised plugging and abandonment plans and schematics submitted by your office have been reviewed and approved as follows:

(1) The construction of these wells have been reviewed and found satisfactory as submitted, therefore, no corrective action is required.



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999 18th STREET - SUITE 500 DENVER, COLORADO 80202-2466

> Lean under 6720736-00000 Modification-minor 6/19/1996 mod approved 6/19/1996 Will need to link with JUN 1 9 199E)

Ref: 8P2-W-GW

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Angela R. Ely Administrative Operations Manager Petroglyph Operating Company, Inc. 6209 North Highway 61 Hutchinson, Kansas 67502

RE:

UIC Perm 81 add well to area Cerment

Duchesne county, Utah

UT20736-04322

0720736 - 04324

UT20736 -04325

UT20736 - 04327

UT20736 - 04328

Conversi in new database also. EPA Area (1720736-00000 96 Juni9 Swells)

Dear Ms. Ely:

Your letter of April 3, 1996, requesting that the following five (5) wells be converted to Class II enhanced oil recovery wells and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit UT2736-00000, is hereby granted.

<u>NAME</u> <u>LC</u>	OCATION	EPA PERMIT NO
Ute Tribal 05-08 SE Ute Tribal 29-08A SE Ute Tribal 05-16 SE	E NE Section 5 E NE Section 29 E SE Section 5	UT2736-04322 UT2736-04324 UT2736-04325 UT2736-04327 UT2736-04328

These additional wells are within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by minor permit modification according to the terms and conditions of that permit. Unless specifically mentioned in the Minor Permit Modification, all terms and conditions of the original permit will apply to the construction, operation, monitoring, and plugging and abandonment of these additional injection wells. The proposed well location, well schematic, conversion procedures, and revised plugging and abandonment plans and schematics submitted by your office have been reviewed and approved as follows:

The construction of these wells have been reviewed and (1)found satisfactory as submitted, therefore, no corrective action is required.

(2) Maximum injection pressure (Pmax) for these wells are a follows:

Pmax = [Fg - 0.433 (Sg)] d

Where: Pmax = Maximum surface injection pressure

at wellhead

d = 4283' shallowest perforations of the

five (5) wells

Sg = Specific gravity of injected water

Pmax = [0.88 - .433 (1.00)] 4283

Pmax = 1915 psig

Until such time as the permittee demonstrates that a fracture pressure other than 1915 psig applies to the disposal zones, of the newly converted wells, the maximum allowable wellhead injection pressure (Pmax) for the these wells will be 1915 psig.

- (3) The plugging and abandonment plans and schematics, submitted by your office, have been reviewed and approved subject to the following changes:
 - (a) Prior to, or in conjunction with the emplacement of the surface plug (plug #3 in the primary plan of the permit) in the production casing, the production casing is to perforated 2', w/4 spf, at a point 50' below the surface casing shoe and cement squeeze the perfs to 50' above the shoe. Pull out of hole (POOH) leaving a 100' cement plug inside the production casing.
 - (b) The production/surface casing annulus will also be cemented from surface to a depth of 50'. A similar plug (50' to surface) will be left inside of the production casing (plug #4 in the primary plan of the permit).

Prior to commencing injection into the above five (5) wells, permittee must fulfill permit condition Part II, C. 2. and have received written authorization to inject by the EPA Director. In summary, these requirements for your newly permitted injection wells are:

- (1) All conversion is complete and the permittee has submitted a completed Well Rework Record (EPA Form 7520-12).
- (2) The pore pressure has been determined.

(3) The well has successfully completed and passed a mechanical integrity test (MIT), guidance enclosed.

All other provisions and conditions of the permit remain as originally issued.

If you have any questions, please contact Mr. Chuck Williams at the above letterhead address, citing MAIL CODE 8P2-W-GW or telephone Mr. Williams at (303) 312-6625. Thank you for your continued cooperation.

Sincerely,

Kerrigan G. Clough

Assistant Regional Administrator Office of Pollution Prevention, State and Tribal Assistance

Enclosures:

Schematics - Conversion MIT Guidance and EPA Forms

Well Rework Record EPA Form 7520-12

cc w/Enclosures:

Mr. Ferron Secakuku

Energy & Mineral Resource Dep't.

Ute Indian Tribe

Mr. Luke Duncan, Chairman

Uintah & Ouray Business Committee

Northern Ute Tribe

Mr. Norman Cambridge Uintah & Ouray Agency

BIA

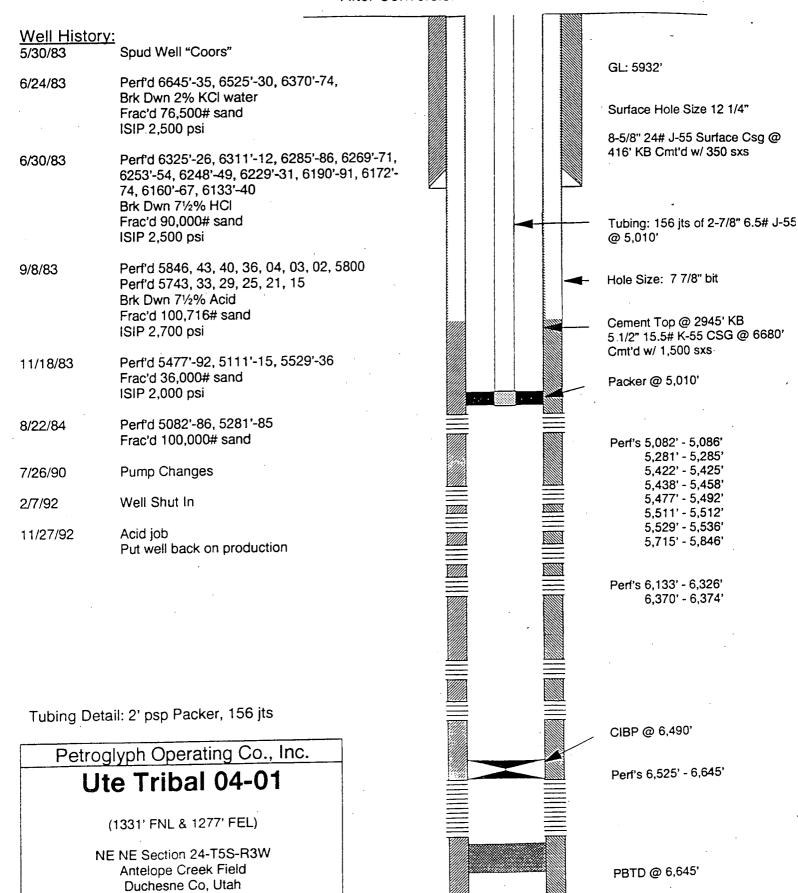
Mr. Gil Hunt

State of Utah Natural Resources Division of Oil, Gas, and Mining

Mr. Jerry Kenczka

BLM - Vernal District Office

Ute Tribal #04-01 Wellbore Diagram After Conversion



TD @ 6,698'

(Not to Scale)

API #43-013 30762: Lease #14-20-H62-3503

Ute Tribal #05-08 Wellbore Diagram After Conversion

Well History

8/21/91 Spud Well

9/21/91 Perf'd D7 5471-88, 5449-52,5444-48,5437-40 Brk Dwn 2% Kcl water Frac'd 120,000 # sand ISIP 2,320 psi

10/27/91Perf'd B6 4283-94 Frac'd 114,500# sand ISIP 1000 psi

8/24/95 Pump Changes

Petroglyph Operating Co., Inc.

Ute Tribal 05-08

(2500' FNL & 550' FEL)

SE NE Section 5-T5S-R3W
Antelope Creek Field
Duchesne Co, Utah
API #43-013 31306: Lease #14-20-H62-4650

GL: 5985" KB 5998' Surface Hole Size 12 1/4" 8-5/8" 24# J-55 Surface Csg @ 378' KB Cmt'd w/ 275 sxs Tubing: 133 jts of 2-3/8" 6.5# J-£ @ 4230' Hole Size: 7 7/8" bit Cement Top @ 2050' KB 5 1/2" 15.5# K-55 CSG @ 5800 Cmt'd w/ 1550 sxs Packer @ 4230' B-6 Perfs 4283-4294' KB' C6 Perfs 4926-34' KB 4920-23' KB 4914-18' KB D7 Perf's 5407-5417' KB 5396-5404' KB 5359-69' KB D-7 Perf's 5437-5440' 5444-5448' 5452-5449' Perf's 5471-5488' PBTD @ 5799' KB' TD @ 6750' KB (Not to Scale)

Ute Tribal #29-08A Wellbore Diagra. After Conversion

Well History:

9/9/91 Spud Well "Coors"

9/12/91 Ran 5 1/2" casing with electric heater sections

in 5 1/2" casing string 4810-20, 4674-88' KB.

9/25/91 Perf'd 4812-18'

Brk Dwn 7½% HCl Frac'd 85,000# sand

ISIP 2,000 psi

10/4/91 Perf'd 4678-86'

Brk Dwn 7½% Acid Frac'd 100,00# sand

ISIP 2,910 psi

10/15/91 Put well on production

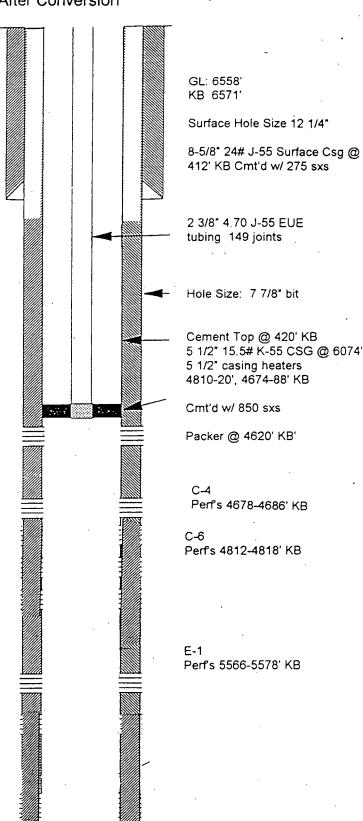
Petroglyph Operating Co., Inc.

Ute Tribal 29-08A

(2600' FNL & 600' FEL)

SE NE Section 29-T5S-R3W Antelope Creek Field Duchesne Co, Utah

API #43-013-31305: Lease #14-20-H62-3518



PBTD @ 5964' KB'

TD @ 6700' KB

(Not to Scale)

Well History:

5/24/95

Spud Well

10/12/95

Perf'd D-7 5438-42, 5414-17',

5396-5400',

5390-92', 5374-80', Brk Dwn 2% KCl water Frac'd 57,400# sand ,

ISIP 2,495 psi

10/13/95

Perf d D-3 5201-06' KB Brk Dwn 2% KCL water Frac'd 29,500# sand

ISIP 1980

10/19/95

Sqeeze cemented D-3 Perfs

10/20/95

Perf'd C-5 4827-32, 4816-20 Perf'd C-6 4934-38, 4908-12,

4918-23

Brk Dwn 2% KCL water Frac'd 67,800# sand

ISIP 2070 psi

4/1/96

Re Frac C-6 sand Frac'd 25,500# sand

ISIP 1,662 psi

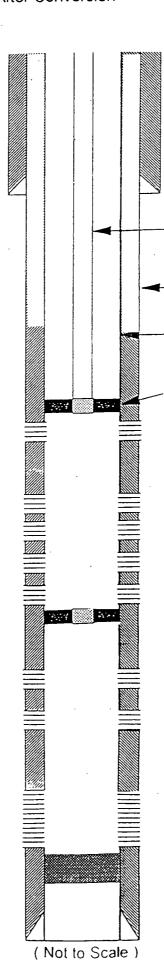
Petroglyph Operating Co., Inc.

Ute Tribal 05-16

(708' FSL & 523' FEL)

SE SE Section 5-T5S-R3W Antelope Creek Field Duchesne Co, Utah

API #43-013 31527: Lease #14-20-H62-3504



GL: 6049' KB 6059'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @ 434 KB Cmt'd w/ 225 sxs

Tubing: 154 jts of 2-3/8* 6.5# J-55

@ 4770' KB

Hole Size: 7 7/8" bit

Cement Top @ 2750' KB 5 1/2" 15.5# K-55 CSG @ 6147" Cmt'd w/ 440 sxs

Packer @ 4770' KB

C-5

Perf's 4827-32' KB 4816-20' KB

C6

Perf's 4934-38' KB 4908-12' KB 4918-23' KB

RTBP set at 5080' KB

D-3

Perf's 5201-06' KB Cement Squeezed'

D-7

Perfs 5438-42' KB 5414-17' 5396-5400' 5390-92' 5374-80'

PBTD @ 6088' KB'

TD @ 6190' KB

Well History:

5/2/95 Spud Well

10/26/95 Perf'd D-7 5500-04, 5454-60,5418-22

5382-88, 5359-68, 5348-50, Pet Dun 20/ 1/Cluster

Brk Dwn 2% KCI water Frac'd 158,400# sand

ISIP 1,950 psi

10/30/95 Perf'd D-3 5228-31

Brk Dwn 2% KCL water Frac'd 22,940# sand ISIP Screen out

11/3/95 Perf'd C5 4848-52

Perf'd C6 4942-48
Brk Dwn 2% KCL water
Frac'd 66020# sand

ISIP 1,772 psi

11/9/95 Perf'd B11 4564-72

Frac'd 27,700# sand

ISIP 1,918 psi

1/14/95 Perf'd B6 4328-36

Frac'd 33,280# sand

ISIP 2,078 psi

2/30/95 Date of First Production

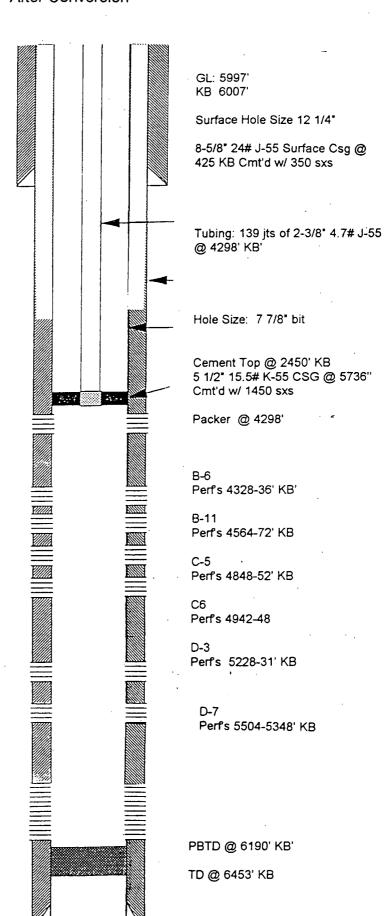
Petroglyph Operating Co., Inc.

Ute Tribal 04-05

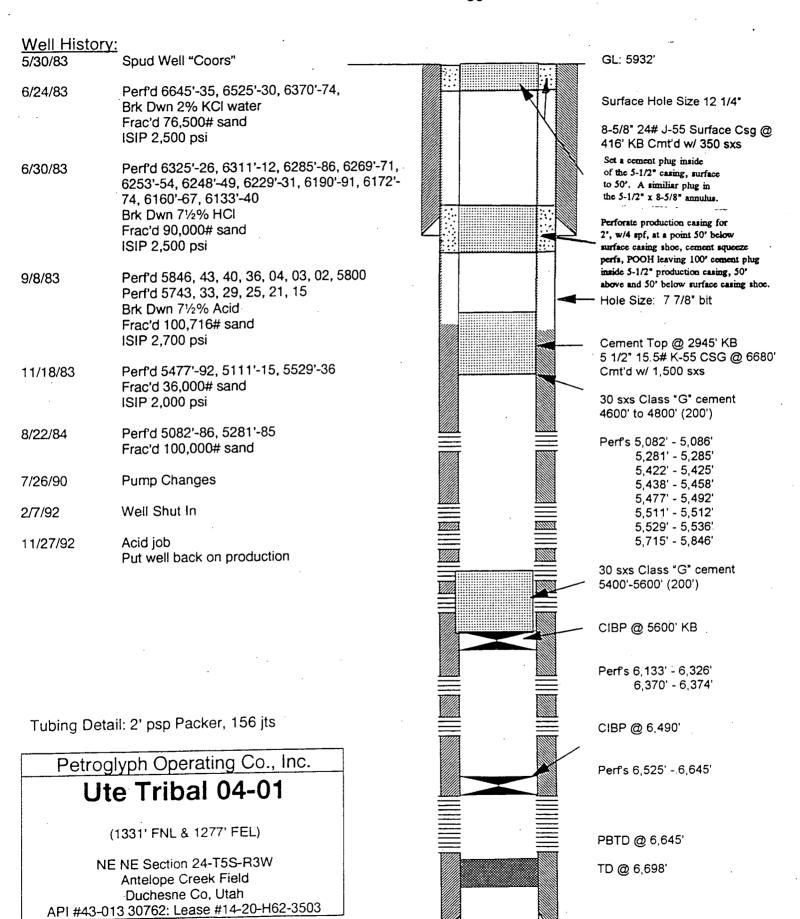
(2725' FNL & 660' FWL)

SW NW Section 4-T5S-R3W Antelope Creek Field Duchesne Co, Utah

API #43-013 31462: Lease #14-20-H62-3503



(Not to Scale)



(Not to Scale)

Ute Tribal #05-C´ Wellbore Diagram Plugged

Well History

8/21/91 Spud Well

9/21/91 Perf'd D7 5471-88, 5449-52,5444-48,5437-40 Brk Dwn 2% Kcl water Frac'd 120,000 # sand ISIP 2,320 psi

10/27/91Perf'd B6 4283-94 Frac'd 114,500# sand ISIP 1000 psi

8/24/95 Pump Changes

Petroglyph Operating Co., Inc.
Ute Tribal 05-08

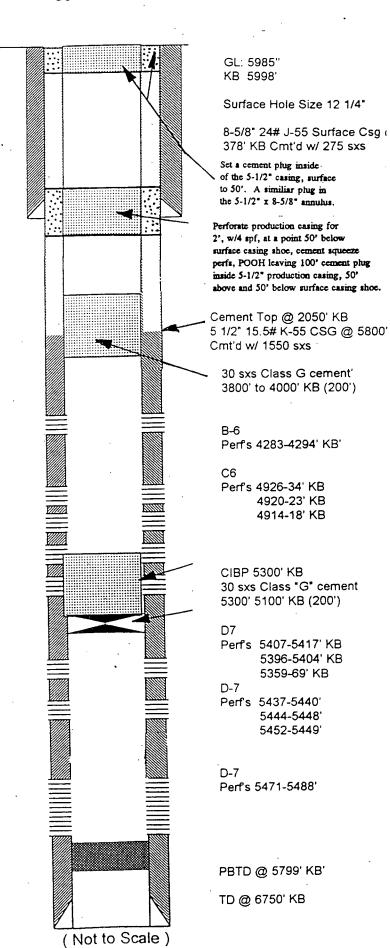
(2500' FNL & 550' FEL)

SE NE Section 5-T5S-R3W

Antelope Creek Field

Duchesne Co, Utah

API #43-013 31306: Lease #14-20-H62-4650



Nell History:

Spud Well "Coors" 3/9/91

Ran 5 1/2" casing with electric heater sections 3/12/91

in 5 1/2" casing string 4810-20, 4674-88' KB.

Perf'd 4812-18' 3/25/91

Brk Dwn 71/2% HCl Frac'd 85,000# sand

ISIP 2,000 psi

Perf'd 4678-86' 10/4/91

> Brk Dwn 71/2% Acid Frac'd 100,00# sand

ISIP 2,910 psi

Put well on production 10/15/91

GL: 6558' KB 6571''

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csg @ 412' KB Cmt'd w/ 275 sxs

Set a cement plug inside of the 5-1/2" casing, surface to 50'. A similiar plug in the 5-1/2" \times 8-5/8" annulus.

Perforate production casing for 2', w/4 spf, at a point 50' below surface casing shoe, coment squeeze perfs, POOH leaving 100' coment plug inside 5-1/2" production casing, 50' above and 50' below surface casing shoe.

Cement Top @ 420' KB 5 1/2" 15.5# K-55 CSG @ 6074' 5 1/2" casing heaters 4810-20', 4674-88' KB

Cmt'd w/ 850 sxs

CIBP @ 4600' KB'

30 sxs Class "G" cement 4400-4600' KB (200')

Perts 4678-4686' KB

Perf's 4812-4818' KB

30 sxs Class "G" cement 4400-4600' KB (200')

Perf's 5566-5578' KB

Petroglyph Operating Co., Inc.

Ute Tribal 29-08A

(2600' FNL & 600' FEL)

SE NE Section 29-T5S-R3W Antelope Creek Field Duchesne Co, Utah API #43-013-31305: Lease #14-20-H62-3518 PBTD @ 5964' KB'

TD @ 6700' KB

Ute Tribal #05-16 Wellbore Diagram Plugged

Well History:

5/24/95

Spud Well

10/12/95

Perf'd D-7 5438-42, 5414-17',

5396-5400',

5390-92', 5374-80', Brk Dwn 2% KCI water Frac'd 57,400# sand ISIP 2,495 psi

10/13/95

Perf'd D-3 5201-06' KB

Brk Dwn 2% KCL water Frac'd 29,500# sand

ISIP 1980

10/19/95

Sqeeze cemented D-3 Perfs

10/20/95

Perf'd C-5 4827-32, 4816-20

Perf'd C-6 4934-38, 4908-12,

4918-23

Brk Dwn 2% KCL water Frac'd 67,800# sand

ISIP 2070 psi

4/1/96

Re Frac C-6 sand

Frac'd 25,500# sand

ISIP 1,662 psi

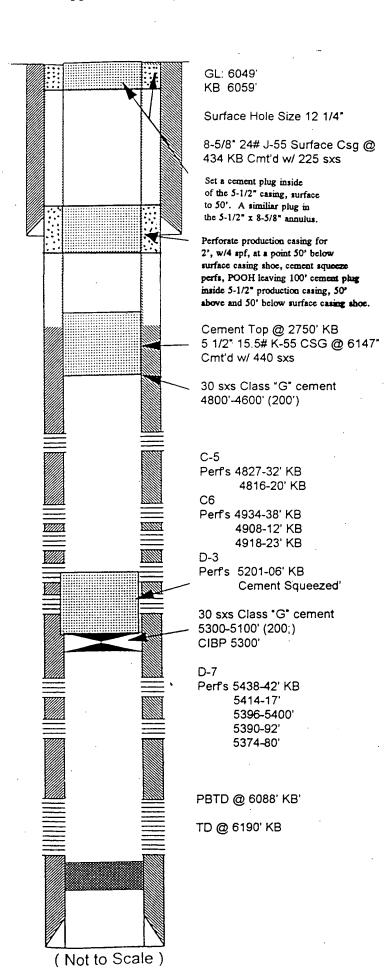
Petroglyph Operating Co., Inc.

Ute Tribal 05-16

(708' FSL & 523' FEL)

SE SE Section 5-T5S-R3W Antelope Creek Field Duchesne Co, Utah

API #43-013 31527: Lease #14-20-H62-3504



Ute Tribal #04-05 Wellbore Diagram Plugged

Well History:

5/2/95 Spud Well

Perf'd D-7 5500-04, 5454-60,5418-22 10/26/95

> 5382-88, 5359-68, 5348-50, Brk Dwn 2% KCI water Frac'd 158,400# sand

ISIP 1,950 psi

Perf'd D-3 5228-31 10/30/95

> Brk Dwn 2% KCL water Frac'd 22,940# sand ISIP Screen out

Perf'd C5 4848-52 11/3/95

> Perf'd C6 4942-48 Brk Dwn 2% KCL water Frac'd 66020# sand

ISIP 1.772 psi

Perf'd B11 4564-72 11/9/95

Frac'd 27,700# sand

ISIP 1,918 psi

Perf'd B6 4328-36 11/14/95

Frac'd 33,280# sand

ISIP 2,078 psi

Date of First Production 12/30/95

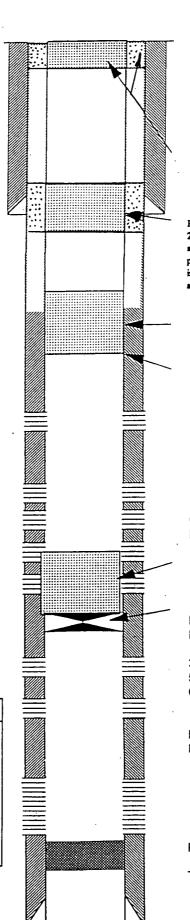
Petroglyph Operating Co., Inc.

Ute Tribal 04-05

(2725' FNL & 660' FWL)

SW NW Section 4-T5S-R3W Antelope Creek Field Duchesne Co, Utah

API #43-013 31462: Lease #14-20-H62-3503



(Mot to Scale)

GL: 5997' KB 6007'

Surface Hole Size 12 1/4"

8-5/8" 24# J-55 Surface Csq @ 425 KB Cmt'd w/ 350 sxs

Set a cement plug inside of the 5-1/2" casing, surface to 50'. A similar plug in the 5-1/2" x 8-5/8" annulus.

Perforate production easing for 2', w/4 spf, at a point 50' below surface casing shoe, cement squeeze perfs, POOH leaving 100' cement plug inside 5-1/2" production casing, 50' above and 50' below surface casing shoe.

Cement Top @ 2450' KB 5 1/2" 15.5# K-55 CSG @ 5736" Cmt'd w/ 1450 sxs

30 sxs Class "G" cement 3800' - 4000' KB (200')

Perf's 4328-36' KB'

B-11

Perf's 4564-72' KB

Perf's 4848-52' KB

Perfs 4942-48

30 sxs Class "G" cement 5300' 5100' KB (200') CIBP 5300' KB

Perf's 5228-31' KB

30 sxs Class "G" cement 5300' 5100' KB (200') CIBP 5300' KB

Perf's 5504-5348' KB

PBTD @ 6190' KB'

TD @ 6453' KB